AMENDMENT NO. 1 JUNE 2021

TO

IS 16088 : 2012 CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPES FOR AUTOMATIC SPRINKLER FIRE EXTINGUISHING SYSTEM — SPECIFICATION

(*Page* 2, *clause* **6.2.3**, *lines* 4 and 5) — Substitute 'between 1 450 kg/m^3 and 1 540 kg/m^3' *for* 'between 1 510 kg/m^3 and 1 540 kg/m^3 '.

(*Page* 4, *clause* **9.5**, *line* 2) — Substitute '1 450 kg/m^3' *for* '1 510 kg/m^3'.

(*Page* 4, *clause* **10.1.1**) — Substitute the following for the existing clause:

'**10.1.1** *Short Term Test*

When subjected to internal hydrostatic pressure test in accordance with the procedure given in IS 12235 (Part 8/Sec 1), the representative pipe sample shall withstand for 1 min without rupture, separation or leakage, an internal hydrostatic pressure of five times the rated pressure (working pressure) at 65 °C. The test shall be conducted at room temperature.'

(*Page* 4, *clause* **10.1.2**, *line* 5) — Substitute 'leakage, an' *for* 'leakage an'.

(*Page* 4, *clause* **10.6**) — Substitute the following for the existing clause:

'**10.6** Recommended information on solvent cement and jointing of CPVC fire sprinkler pipes and fittings is given at Annex D.'

Price Group 1

(*Page* 4, *clause* **10.6**) — Insert the following new clause at the end:

‘10.7 Vibration Test

Representative pipe and fitting assemblies shall withstand the effects of vibration for 30 h in accordance with the procedure given in Annex F without deterioration of performance characteristics. Following the vibration test, each test assembly shall comply with the short term pressure test given in **10.1.1**.’

(*Page* 19, *clause* **E-2.7.3**) —Add the following new clause at the end:

‘E-2.8 Vibration Test (Type Test)

E-2.8.1 For this type test, the manufacturer or the supplier shall furnish to the testing authority, one sample as per the requirements of **10.7** and Annex F.

E-2.8.2 The sample so selected shall be tested for compliance with the requirements of type test given in **10.7**.

E-2.8.3 If the sample passes the test, the class of pipe under consideration shall be considered to be eligible for type approval which shall be normally valid for a period of 1 year.

ANNEX F

(*Clauses* 10.7 *and* E-2.8.1)

VIBRATION TEST

F-1 Pipe and fitting assemblies shall withstand the effects of vibration for 30 h without deterioration of performance characteristics. Following the vibration test, each test assembly shall comply with the specified requirements given in the short term pressure test (*see* **10.1.1**).

F-2 For pipes and fittings representative pipe and fitting arrangements, assembled in accordance with IS 15105 and consisting of approximately 610 mm lengths of pipe attached to each outlet of a tee, are to be placed horizontally and attached to a vibration table. The pipe branch lines are to be attached to the vibration table on each side of the tee outlets firmly to avoid any undue movement. The side tee outlet branch line is to have a fitting on the end of the branch line pipe and is to be supported with a pipe support located near the end fitting. The pipe support which is most expected to cause pipe damage or abrasion is to be selected based on the type of pipe supports specified in IS 15105. The pipe support is to be located at the maximum distance from the end fitting as specified in IS 15105 and attached to a fixed (non vibrating) support. A load equivalent to the weight of a 1.2 m length of water-filled pipe is to hang freely from the fitting located on the end of the side outlet pipe branch line. *See* Fig. 9 for the general test arrangement.

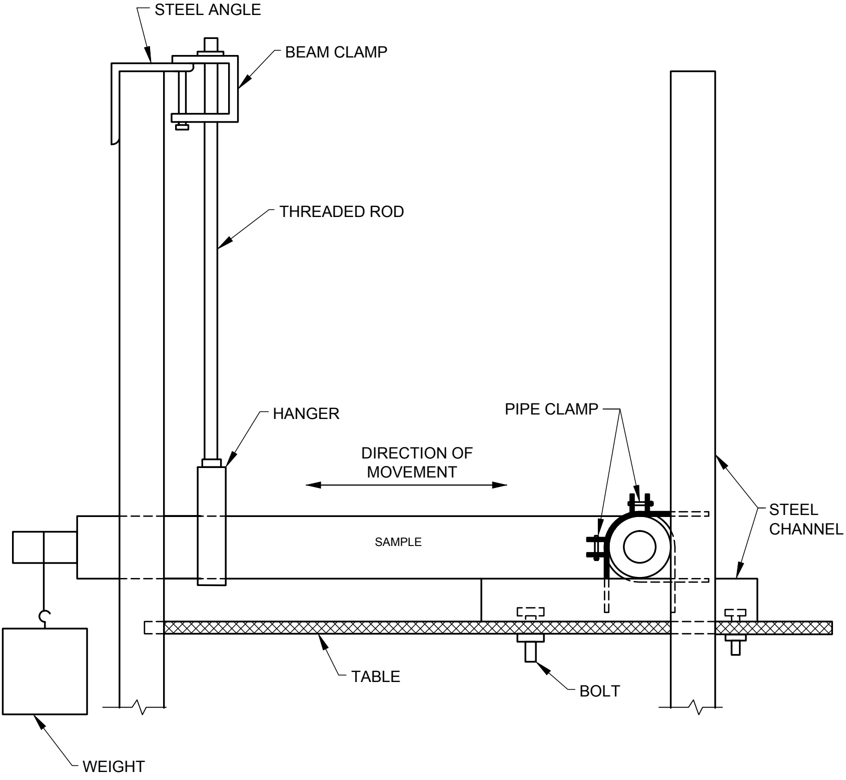

FIG. 9 GENERAL TEST ARRANGEMENT FOR VIBRATION TEST

F-3 For flexible piping products, representative pipe and fitting arrangements, assembled in accordance with IS 15105 and consisting of approximately 610 mm lengths of pipe are to be bent to the minimum bending radius specified in IS 15105 and attached to a vibration table. One end of the pipe is to be attached to the vibration table and the other end is to be attached to a fixed (non-vibrating) support. The pipe supports which are most expected to cause pipe damage or abrasion are to be selected from those specified in IS 15105.

F-4 Unpressurized sample assemblies are to be subjected to a vibration of 0.51 mm amplitude at a varying frequency ranging from 18 to 37 Hz for a period of 5 h. The cycle period is to be 25 ± 5 s. If one or more resonant points are clearly detectable, the assemblies are to be vibrated at that frequency or frequencies for periods of the remaining 25 h of the test proportionate to the number of resonant frequencies discovered. If no resonant frequency is detected, then tests are to be conducted at the amplitudes, frequencies, and time periods noted in Table 14. Amplitude is the maximum displacement of sinusoidal motion from position of rest or one-half of the total table displacement.

Table 14 Amplitude of Vibration

(*Clause* F-5)

Sl No. (1)	**Amplitude** mm (inch) (2)	**Total Displacement** mm (inch) (3)	**Frequency** Hz (4)	**Time** h (5)
i)	0.25 (0.010)	0.51 (0.020)	28	5
ii)	0.51 (0.020)	1.02 (0.040)	28	5
iii)	1.90 (0.075)	3.81 (0.150)	28	5
iv)	0.51 (0.020)	1.02 (0.040)	18 – 37 (variable)	5
v)	0.89 (0.035)	1.78 (0.070)	18 – 37 (variable)	5

F-5 After being subjected to the required vibration, the sample is to be examined for wear or damage, and then subjected to the short term pressure test (*see* **10.1.1**).’

(CED 22)

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